

REMARKS

I. Status of the Application

Claims 1-20 are pending in this application. Claims 8-10 and 18-20 have been withdrawn from consideration, but will be considered upon allowance of a generic claim. Claims 1-6 and 11-16 are generic. (See Office Action dated 8/21/2002). With regard to the remaining claims 1-7 and 11-17, in the December 31, 2002 office action, the Examiner:

1. Objected to the specification, requiring further detail regarding the Winthrax brand software referenced on page 11 of the specification;
2. Objected to claims 5 and 15 under 37 C.F.R. §1.75 for alleged informalities;
3. Rejected claims 1-4 and 11-14 under 35 U.S.C. § 103(a) as allegedly being unpatentable over U.S. Patent No. 4,941,115 to Nihart (hereinafter "Nihart") in view of U.S. Patent No. 5,299,306 to Asprey (hereinafter "Asprey");
4. Rejected claims 5 and 15 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Nihart in view of Asprey in further view of U.S. Patent No. 3,571,752 to Sturm, Jr. (hereinafter "Sturm");
5. Rejected claims 6 and 16 under 35 U.S.C. § 103(a) as allegedly being unpatentable over Nihart in view of Asprey in further view of U.S. Patent No. 5,926,031 to Wallace (hereinafter "Wallace"); and
6. Deemed claims 7 and 17 allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claim.

In this response, applicants have amended claim 5 to further clarify the subject matter claimed. Applicants have cancelled claim 15, and have added new claim 21. Applicants respectfully traverse the prior art rejections of claims 1-6 and 11-16 and request reconsideration of the pending claims in view of the foregoing amendments and the following remarks.

II. The Objections to Claims 5 and 15 Should be Withdrawn

In the December 31, 2002 office action, the Examiner objected to claims 5 and 15, requiring replacement of the phrase “a user” with the phrase “the user”. In this response, applicants have amended claim 5 as required by the Examiner. Applicants have further canceled claim 15. Because claim 5 has been amended to remove the objectionable phrase, and because claim 15 has been canceled, it is submitted that the objections to claims 5 and 15 should be withdrawn.

III. The Prior Art Rejections Should be Withdrawn

Claims 1-7 and 11-17 stand rejected as allegedly being unpatentably obvious over various combinations of prior art, each combination including at least Nihart and Asprey. As will be discussed below in further detail, the combinations of the prior art proposed by the Examiner do not arrive at the invention of any of claims 1-7 or 11-17. Moreover, there is no motivation or suggestion to combine the references Nihart and Asprey in the manner proposed by the Examiner. Accordingly, it is respectfully submitted that the prior art rejections of those claims should be withdrawn.

A. Claim 1

1. The Present Invention

Claim 1 is directed to an apparatus for enabling signal testing in a test configuration.

The apparatus includes a cable environment embodied as a portable housing structure including a plurality of cables exhibiting a plurality of lengths and impedances. At least a portion of each of the cables is supported within the portable housing structure and a user can selectively connect any one of the cables between a host device and a target device.

The above described invention helps in determine signal characteristics in configurations of computer and electronic devices under various cabling conditions.

2. Nihart

Nihart discloses a hand-held battery-powered instrument that test communication ports of a data processing system. The instrument analyzes received data frames for multiple conditions, such as parity, poll commands, and violation sequences. Indicator lights show proper/improper operation of the port, and also indicate phase reversal of the lines. (Nihart Abstract). The instrument includes twinaxial connectors for connecting to twinaxial cable. The instrument also includes terminators that provide an impedance match for the connectors in a conventional manner, including baluns selected for the impedance of the line.

3. Asprey

Asprey is directed to an apparatus for coupling computer video signals to a local color monitor and a distant monochrome monitor. While the apparatus includes various circuits, the Examiner cited the portion of Asprey that relates to impedance matching. In particular, Asprey discusses the use of various capacitors and/or resistors to provide impedance matching for use in systems having various lengths of cable to the monitors.

4. The Obviousness Rejection of Claim 1
Over Nihart and Asprey is in Error

Claim 1 stands rejected as allegedly being obvious over Nihart in view of Asprey. It is submitted that there is no motivation or suggestion to combine Nihart and Asprey as proposed. Furthermore, even if there were a motivation or suggestion to combine Nihart and Asprey as proposed, the proposed combination would not arrive at the invention of claim 1.

In the December 31, 2002 office action, the Examiner provided the following reasoning for the rejection of claim 1:

With respect to Claims 1 and 11, Nihart teaches a hand held tester connecting a host device and a target device, considered to be the input/output ports of a DP system, such as peripheral devices to a central processor, the claimed impedances, considered to be a balun (Col. 4, lines 6-10). Nihart teaches connectors, but lacks the cables. Asprey teaches that it is well known to use terminals/extender cable lengths with an impedance matching network (Col. 12, lines 5-15). One of ordinary skill in the art would have readily recognized the advantage and desirability to use cables in order to achieve critical dampening in some systems and devices.

(Office action at p.3)

Applicants respectfully disagree on two distinct grounds. First, even if Asprey taught the use of terminals/extender cable lengths for critical damping, there is no motivation or suggestion to replace the baluns of Nihart with such "terminals/extender cable lengths".

Second, it is respectfully submitted that the Examiner has mischaracterized the teachings of Asprey, and as a result, even if the teachings of Asprey were incorporated into Nihart, then the resulting device would not include “a portable housing structure including a plurality of cables exhibiting a plurality of lengths and impedances”, as called for in claim 1.

a. No Motivation to Replace Baluns

Nihart teaches a test device in which baluns are used to accomplish impedance matching. Indeed, the baluns may even be adjustable depending on the cable length of the system. The Examiner appears to propose the replacement of the baluns with cables of different lengths as allegedly (but not in fact) taught by Asprey.

Even if Asprey taught the use of cables of different lengths for use in impedance matching, Asprey does not teach the desirability of replacing a balun with cables of different lengths. Furthermore, Asprey certainly does not teach or suggest the desirability of replacing a balun with cables of various lengths *within a handheld tester* such as the one taught by Nihart.

The only motivation or suggestion for the combination cited by the Examiner is that “one of ordinary skill in the art would have recognized the advantage and desirability to use cables to achieve critical dampening in some systems or devices”. Applicants respectfully submit that neither Nihart nor Asprey discuss a single advantage of using cables to achieve critical damping in a test device such as the one taught by Nihart. Nihart teaches the use of a balun, which would appear to adequate for the purposes of Nihart. Asprey does not suggest that cables of various lengths constitute a suitable replacement, much less a preferred

replacement, of a balun. Asprey also fails to discuss *any* advantages of using cables of various lengths. Accordingly, the cited art does not suggest the “advantage and desirability to use cables to achieve critical dampening”, as contended by the Examiner.

b. Asprey does not Teach the Use of Cables

The Examiner’s rejection of claim 1 is premised on the contention that “Asprey teaches that it is well known to use terminals/extender cable lengths with an impedance matching network”. In other words, the Examiner appears to allege that Asprey teaches the user of cable lengths to *achieve* impedance matching.

Applicants respectfully disagree with this characterization of Asprey. To the contrary of the Examiner’s assertion, Asprey appears to teach that “terminals/extender cable lengths” create impedance problems that *require balancing by some other means*. In particular, the portion of Asprey cited by the Examiner in support of the Examiner’s rejection is set forth below, along with additional context from Asprey:

While this resistor works well enough in most cases to provide critical damping of the signal, other schemes to achieve critical damping may be desirable with some combinations of computers and terminals/extender cable lengths and include an impedance matching network 508, as shown for the G signal, and yet another network 510 as shown for the B signal. Network 508 (G signal) consists of a resistor 512 of approximately 100 ohms in series with a very small capacitor 513 of approximately 100 pf, these components being parallel with resistor 515 (approximately 100 ohms) as shown. The value of capacitor 513 is selectdd according to the length of extender cable 200, and for shorter cable lengths of less than approximately 50 feet, it may be left out entirely. Its maximum value, for a 300-foot cable, is approximately 100 pf, with lower value capacitors used for shorter cable lengths. This network provides slightly better damping characteristics for higher frequencies than resistor 506 by itself.

(Asprey at col. 12, lines 5-24).

Thus, Asprey states that “other schemes to achieve critical damping may be desirable *with* some combinations of computers and terminals/extender cable lengths”. In other words,

some combinations of computers and terminals/extender cable lengths may require other schemes to achieve critical damping. Moreover, these “other schemes” taught by Asprey include “an impedance matching network 508”. The impedance matching network 508 consists of resistors and capacitors, not cables of different lengths.

Thus, Asprey teaches that the combination of computers and “terminals/extender cable lengths” *create* the *need* for an impedance matching network. The impedance matching network that fulfills the need includes resistor and capacitors, not cables of different lengths and/or impedances.

Thus, even if there were a suggestion to replace the baluns of Nihart with the impedance matching network of Asprey, then such replacement network would include resistors and capacitors, and not of “a plurality of cables exhibiting a plurality of lengths and impedances of cables”, as called for in claim 1.

c. Claim 1 is Patentable

Accordingly, for multiple independent reasons, it is respectfully submitted that the obviousness rejection of claim 1 is in error and should be withdrawn. First, there is no motivation or suggestion to replace the baluns of Nihart with the impedance matching network of Asprey. Second, even if such a motivation or suggestion existed, the proposed combination would not arrive at the claimed invention because the impedance matching network of Asprey does not include a plurality of cables exhibiting a plurality of lengths and impedances, as claimed. In other words, neither Nihart nor Asprey, alone or in combination, teach, disclose or suggest “a portable housing structure including a plurality of cables

exhibiting a plurality of lengths and impedances”, as called for in claim 1.

B. Claims 2-4

Claims 2-4 all stand rejected as allegedly being obvious over Nihart in view of Asprey. Claims 2-4 all depend from and incorporate all of the limitations of claim 1. Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the rejection of claims 2-4 as being obvious over Nihart and Asprey should be withdrawn.

C. Claim 5

Claim 5 stands rejected as allegedly being obvious over Nihart in view of Asprey in further view of Sturm. Claim 5 depends from and incorporates the limitations of claim 1. As discussed above, neither Nihart nor Asprey, either alone or in combination, teach, disclose or suggest “a portable housing structure including a plurality of cables exhibiting a plurality of lengths and impedances”, as called for in claims 1 and 5. Sturm does not resolve the deficiencies of Nihart and Asprey with regard to this limitation, and is not cited by the Examiner for such purpose.

Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the obviousness rejection of claim 5 should be withdrawn.

D. Claim 6

Claim 6 stands rejected as allegedly being obvious over Nihart in view of Asprey in further view of Wallace. Claim 6 depends from and incorporates the limitations of claim 1. As discussed above, neither Nihart nor Asprey, either alone or in combination, teach, disclose or suggest “a portable housing structure including a plurality of cables exhibiting a plurality of lengths and impedances”, as called for in claims 1 and 6. Wallace does not resolve the deficiencies of Nihart and Asprey with regard to this limitation, and is not cited by the Examiner for such purpose.

Accordingly, for at least the same reasons as those set forth above in connection with claim 1, it is respectfully submitted that the obviousness rejection of claim 6 should be withdrawn.

E. Claims 11-16

Claims 11-16 stand rejected for reasons identical to those for which claims 1-6, respectively, stand rejected. (See December 31, 2002 office action at pp. 3-4). As discussed above, the rejections of claims 1-6 are in error and should be withdrawn. Accordingly, for substantially the same reasons as those set forth above in connection with claims 1-6, it is respectfully submitted that the rejections of claims 11-16 are in error and should be withdrawn.

F. New Claim 21

New claim 21 depends from claim 11 and is therefore allowable over the prior art for

at least the same reasons as those set forth above in connection with claim 11.

IV. The Objection to the Disclosure

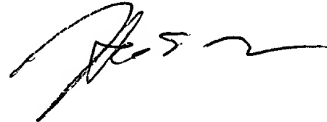
The Examiner has objected to the disclosure stating the word WINTHRAX should be capitalized and accompanied by generic terminology. WINTHRAX is not currently a registered trademark, but is used as a brand name for testing software. As discussed in the specification, the Winthrax is generically described as test code that generates signal traffic over multiple cables (See Application at p.11, lines 4-5) within the context of the tests described generally throughout the application. Applicants have amended the specification to capitalize the term “Winthrax” and add the “TM” designation.

As a consequence, it is respectfully submitted that the objections to the specification are now moot.

V. Conclusion

For all of the foregoing reasons, it is respectfully submitted the applicants have made a patentable contribution to the art. Favorable reconsideration and allowance of this application is, therefore, respectfully requested.

Respectfully submitted,



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Appendix Showing Marked-Up Versions of the Amendments

Amended Claim 5:

5. (amended) The apparatus of claim 1, wherein the cable environment includes a switch enabling [a] the user to select a cable of a particular length and impedance.

The paragraph beginning at page 11, line 1 with the following:

Referring now to FIG. 5, a schematic diagram of a first exemplary configuration suitable for performing signal testing using a cable environment constructed according to principles of the present invention is shown. In FIG. 5, a host server 30 executes test code such as [Winthrax] WINTHRAX™ brand software available from LSI Logic to generate signal traffic over four cables (i.e., bus lines) provided by the cable environment 10. As previously indicated, the cable parameters selected for use are simply a matter of design choice. The cable environment 10 of the present invention advantageously provides a means by which users may quickly and conveniently select and connect different cables having different characteristics. In this manner, the present invention provides a signal testing implementation which is faster, easily repeatable and enables wider test coverage